U.S. DEPARTMENT OF COMMERCE
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PB-252 073

SINCLAIR LAKE, BALDWIN, HANCOCK, AND PUTNAM COUNTIES, GEORGIA

PACIFIC NORTHWEST ENVIRONMENTAL RESEARCH LABORATORY

PREPARED FOR
NATIONAL ENVIRONMENTAL RESEARCH CENTER

JUNE 1975

124140

PB 252 073

REPORT
ON
SINCLAIR LAKE
BALDWIN, HANCOCK, AND PUTNAM COUNTIES
GEORGIA

EPA REGION IV

WORKING PAPER NO. 294

WITH THE COOPERATION OF THE

GEORGIA DEPARTMENT OF NATURAL RESOURCES

AND THE

GEORGIA NATIONAL GUARD

JUNE, 1973

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2
3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE: Report on Sinclair Lake, Baldwin, Hancock, and Putnam Counties, Georgia.	5. REPORT DATE: Prepared June 1975
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S): Anonymous (National Eutrophication Survey Staff)	8. PERFORMING ORGANIZATION REPORT NO.: Working Paper #294
9. PERFORMING ORGANIZATION NAME AND ADDRESS: National Eutrophication Survey U.S. Environmental Protection Agency 200 S. W. 35th St. Corvallis, Oregon 97330	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS: Office of Research and Development U.S. Environmental Protection Agency 401 M Street, S. W. Washington, DC 20460	13. TYPE OF REPORT AND PERIOD COVERED: Final - 1973
	14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES
Prepared in cooperation with the U.S. Environmental Protection Agency, National Environmental Research Center, Las Vegas, Nevada 89114

16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN-ENDED TERMS	c. COSATI Field/Group
eutrophication lakes nutrients phosphorus nitrogen loading		05B 05C

PRICES SUBJECT TO CHANGE

18. DISTRIBUTION STATEMENT: Release unlimited	19. SECURITY CLASS (This Report)	21. NO. OF PAGES: 65
	20. SECURITY CLASS (This page)	22. PRICE: 4.50 - 2.25

i.

220-1 (9-73)

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F[illegible]EWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to fresh water lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point-source discharge reduction and non-point source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's fresh water lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by EPA and to augment plans implementation by the states.

ACKNOWLEDGMENT

The staff of the National Eutrophication Survey (Office of Research & Development, U. S. Environmental Protection Agency) expresses sincere appreciation to the Georgia Department of Natural Resources for professional involvement and to the Georgia National Guard for conducting the tributary sampling phase of the Survey.

Joe D. Tanner, Commissioner of the Department of Natural Resources; J. Leonard Ledbetter, Director of the Environmental Protection Division; Ralph S. Howard, Jr., Environmental Affairs Coordinator; Gene B. Welsh, Chief of the Water Protection Branch; Edward T. Hall, Jr., Unit Coordinator; and Broughton A. Caldwell, R. Marshall Gaddis, William D. Kennedy, and Kenneth W. Martin, Environmental Specialists, provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary lake reports, and provided critiques most useful in the preparation of this Working Paper series.

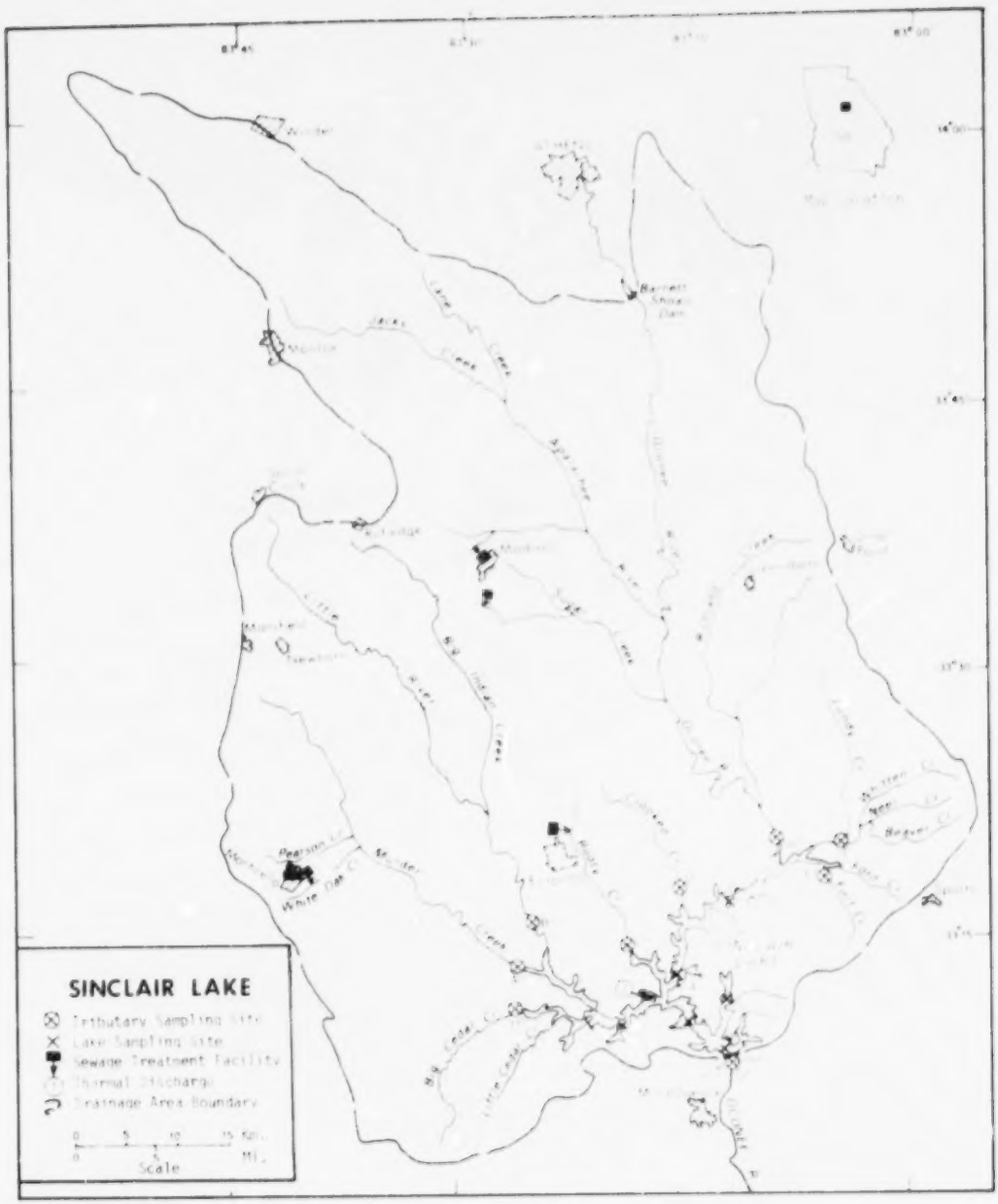
Major General Joel B. Paris, III, then the Adjutant General of Georgia, and Project Officer Lt. Colonel John R. Ranier, who directed the volunteer efforts of the Georgia National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF GEORGIA

LAKE NAME	COUNTY
Allatoona	Bartow, Cherokee, Cobb
Blackshear	Crisp, Dooly, Lee, Sumpter
Blue Ridge	Fannin
Burton	Rabun
Chatuge	Towns, GA; Clay, NC
Clark Hill	Columbia, Elbert, Lincoln, McDuffie, Wilks, GA; Abbeville, McCormick, SC
Harding	Harris, GA; Chambers, Lee, AL
Hartwell	Franklin, Hart, Stephens, GA; Anderson, Oconee, Pickens, SC
High Falls	Butts, Lamar, Monroe
Jackson	Butts, Jasper, Newton
Nottely	Union
Seminole	Decatur, Seminole, GA; Jackson, FL
Sidney Lanier	Dawson, Forsyth, Gwinnett, Hall, Lumpkin
Sinclair	Baldwin, Hancock, Putnam
Walter F. George	Clay, Quitman, Stewart, GA; Barbour, Henry, Russell, AL


SINCLAIR LAKE
Tributary Sampling Site
Lake Sampling Site
Sewage Treatment Facility
Thermal Discharge
Drainage Area Boundary
Scale

SINCLAIR LAKE*

STORET NO. 1313

I. CONCLUSIONS

A. Trophic Condition:

Survey data indicate that Sinclair Lake is eutrophic. It ranked tenth in overall trophic quality when the 14 Georgia lakes sampled in 1973 were compared using a combination of six parameters**. Seven lakes had less median total phosphorus, four had less and two had the same median dissolved phosphorus, eight had less median inorganic nitrogen, ten had less mean chlorophyll a, and six had greater mean Secchi disc transparency. Near-depletion or depletion of dissolved oxygen with depth occurred at five of the six sampling stations in July and September.

Survey limnologists reported sparse emergent vegetation along the south shoreline near sampling station 3 and along both shorelines at station 5.

The Georgia Power Company operates a steam-electric generating plant at Sinclair Lake on a peninsula between the Little River arm and the Beaverdam Creek arm (see map, page v, for approximate location). Once-through cooling water for the plant is withdrawn from the Little River arm and is discharged to the Beaverdam Creek arm; and Frey (1970) reported that about 3 percent of the lake (ca. 190

* Table of metric conversions--Appendix A.
** See Appendix B.

ha) was affected by this large-volume thermal discharge. The nearest "downstream" Survey sampling site, station 3, was about five kilometers from the point of thermal discharge; and, although surface temperatures at station 3 were consistently higher than at station 1 near the dam, the differences were not great (1.3°C, 0.3°C, and 2.0°C at the three sampling times). Considering the relatively small portion of the lake involved, the effect of the thermal discharge on the overall trophic condition of the lake probably was minimal.

B. Rate-Limiting Nutrient:

The algal assay results indicate that Sinclair Lake was phosphorus limited at the time the sample was collected (07/01/75). The lake data indicate phosphorus limitation at all sampling stations in September and at stations 1, 3, 4, and 5 in November with borderline limitation at station 2 and nitrogen limitation at station 6.

C. Nutrient Controllability:

1. Point sources--The phosphorus contribution of the listed point sources amounted to only 5.2% of the total input to Sinclair Lake during the sampling year; however, the phosphorus export rates of the Oconee River and Rooty Creek were substantially higher than those of the other Sinclair Lake tributaries (see page 17). For the Oconee River, major point sources outside the 40-kilometer

limit of the Survey* undoubtedly contributed significantly to the phosphorus load of the river. The eight wastewater treatment plants serving the City of Athens and environs have a combined design flow of 28,800 m^3/day and treat wastes with a population equivalence of about 80,000 persons (Anonymous, 1971). At an estimated phosphorus contribution of 1.134 kg/person/year, these sources would account for about 102,000 kg/yr or 54% of the calculated "non-point" load of the Oconee River during the sampling year. Subtraction of this estimated point-source load would reduce the Oconee River phosphorus export rate from 40 kg/km^2/yr to 18 kg/km^2/yr. The latter is a more-likely non-point export rate considering the rates of the five unimpacted Sinclair Lake tributaries (mean of 17.4 kg P/km^2/yr, range of 9 to 27 kg P/km^2/yr).

Rooty Creek had a very high phosphorus export rate of 73 kg/km^2/yr. While part of this may have been due to inadequate sampling of the Eatonton activated sludge plant effluent, it is believed the high rate is attributable to other, unidentified, point sources and/or land-use practices in the Rooty Creek drainage. Note that the phosphorus levels in the Eatonton effluent samples were quite similar to those in the samples from the activated sludge plants serving the City of Madison (see Appendix E) and that the mean of

* See Working Paper No. 175, "...Survey Methods, 1973-1976".

the Eatonton plant flows (950 m^3/day) was within 10% of the design flow of 1,050 m^3/day reported by the Georgia Department of Natural Resources (Anonymous, 1972); i.e., it is likely that the total phosphorus load calculated for the Eatonton plant is a typical load for that plant.

The present Sinclair Lake phosphorus loading rate of 4.12 g/m^2/yr is just over three times the rate proposed by Vollenweider (Vollenweider and Dillon, 1974) as a eutrophic rate (see page 18). However, Sinclair Lake has a relatively short mean hydraulic retention time of 53 days, and Vollenweider's model may not apply. Note that only 31% of the applied phosphorus load was retained in the lake in the Survey sampling year.

While even complete removal of point-source phosphorus (including the estimated Athens load) would still leave a loading rate of 2.26 g P/m^2/yr, in view of the questionable applicability of Vollenweider's model, it is believed that a high degree of removal would result in persistent phosphorus limitation in all parts of the lake and significantly improve the trophic condition of Sinclair Lake.

2. Non-point sources--Except for the Oconee River and Rooty Creek discussed above, the phosphorus export rates of Sinclair Lake tributaries were quite low (see page 17) and compare well with unimpacted Georgia streams sampled elsewhere; e.g.,

tributaries to mesotrophic Blue Ridge Lake* (mean of 18 kg/km^2/yr), Chatuge Lake* (mean of 22 kg/km^2/yr), and Nottely Reservoir* (mean of 20 kg/km^2/yr).

* Respectively, Working Papers 284, 286, and 291.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS

A. Lake Morphometry†:

1. Surface area: 62.17 kilometers^2.
2. Mean depth: 6.6 meters.
3. Maximum depth: 27.1 meters.
4. Volume: 409.992 x 10^6 m^3.
5. Mean hydraulic retention time: 53 days.

B. Tributary and Outlet:
(See Appendix C for data)

1. Tributaries -

Name	Drainage area (km^2)*	Mean flow (m^3/sec)*
Murder Creek	505.0	5.4
Little River	725.2	7.7
Rooty Creek	103.6	1.2
Crooked Creek	69.9	0.7
Shoulderbone Creek	253.8	2.9
Fort Creek	93.2	1.1
Oconee River	4,739.7	61.2
Big Cedar Creek	334.1	3.4
Minor tributaries & immediate drainage -	624.2	5.7
Totals	7,448.7	89.3

2. Outlet -

Oconee River	7,510.9**	89.3

C. Precipitation***:

1. Year of sampling: 120.6 centimeters.
2. Mean annual: 118.3 centimeters.

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† Hall, 1974.
* For limits of accuracy, see Working Paper No. 175.
** Total area adjusted to equal sum of the subdrainage areas plus the area of the lake.
*** See Working Paper No. 175.

III. LAKE WATER QUALITY SUMMARY

Sinclair Lake was sampled three times during the open-water season of 1973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from six stations on the lake and from a number of depths at each station (see map, page v). During each visit, a single depth-integrated (4.6 m to surface) sample was composited from the six stations for phytoplankton identification and enumeration; and during the first visit, two 18.9-liter depth-integrated samples were composited for algal assays (stations 1, 2, and 3 were combined, and stations 4, 5, and 6 were combined). Also each time, a depth-integrated sample was collected from each of the stations for chlorophyll a analysis. The maximum depths sampled were 21.6 meters at station 1, 11.0 meters at station 2, 18.9 meters at station 3, 17.1 meters at station 4, 7.6 meters at station 5, and 13.4 meters at station 6.

The lake sampling results are presented in full in Appendix D and are summarized in the following table.

SUMMARY OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR SINCLAIR LAKE
STORET CODE 1313

PARAMETER	1ST SAMPLING (7/ 1/73) 6 SITES RANGE	MEAN	MEDIAN	2ND SAMPLING (9/ 8/73) 6 SITES RANGE	MEAN	MEDIAN	3RD SAMPLING (11/13/73) 6 SITES RANGE	MEAN	MEDIAN
TEMP (C)	21.3 - 30.6	26.6	28.0	24.7 - 31.7	28.5	28.7	10.2 - 19.5	16.3	16.8
DISS OXY (MG/L)	0.3 - 9.1	4.0	1.9	0.0 - 8.8	3.6	4.0	6.9 - 10.0	8	8.0
CNDCTVY (MCROMO)	55. - 90.	64.	60.	67. - 106.	77.	75.	52. - 88.	61.	60.
PH (STAND UNITS)	6.6 - 9.1	7.5	7.5	6.2 - 8.7	7.0	6.8	6.4 - 7.0	6.8	6.8
TOT ALK (MG/L)	14. - 38.	21.	20.	21. - 34.	27.	27.	17. - 30.	24.	23.
TOT P (MG/L)	0.015 - 0.061	0.034	0.031	0.012 - 0.079	0.027	0.022	0.017 - 0.087	0.038	0.024
ORTHO P (MG/L)	0.002 - 0.015	0.005	0.004	0.002 - 0.031	0.006	0.003	0.014 - 0.049	0.020	0.014
NO2+NO3 (MG/L)	0.060 - 0.470	0.184	0.130	0.020 - 0.390	0.071	0.040	0.040 - 0.490	0.195	0.140
AMMONIA (MG/L)	0.060 - 0.430	0.154	0.110	0.020 - 0.870	0.159	0.080	0.030 - 0.200	0.068	0.050
KJEL N (MG/L)	0.200 - 1.700	0.452	0.400	0.200 - 1.400	0.596	0.500	0.200 - 0.600	0.326	0.300
INORG N (MG/L)	0.120 - 0.790	0.348	0.240	0.040 - 0.920	0.230	0.120	0.100 - 0.540	0.263	0.210
TOTAL N (MG/L)	0.240 - 1.440	0.634	0.530	0.220 - 1.450	0.667	0.630	0.240 - 0.970	0.521	0.480
CHLRPYL A (UG/L)	7.2 - 14.8	10.5	10.6	3.0 - 11.4	7.3	7.9	4.5 - 9.3	6.2	5.8
SECCHI (METERS)	0.4 - 1.8	1.5	1.5	0.9 - 2.3	1.8	1.9	0.7 - 1.5	1.3	1.4

B. Biological characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal Units per ml
07/01/73	1. Synedra	618
	2. Raphidiopsis	556
	3. Flagellates	371
	4. Nitzschia	247
	5. Anabaena	227
	Other genera	1,381
	Total	3,400
09/08/73	1. Raphidiopsis	1,502
	2. Lyngbya	928
	3. Dactylococcopsis (?)	560
	4. Mougeotia	221
	5. Synedra	133
	Other genera	441
	Total	3,785
11/13/73	1. Raphidiopsis	468
	2. Chroococcus	324
	3. Scenedesmus	234
	4. Mougeotia	144
	5. Tetraedron	108
	Other genera	917
	Total	2,195

2. Chlorophyll *a* -

Sampling Date	Station Number	Chlorophyll *a* (µg/l)
07/01/73	01	11.1
	02	8.1
	03	7.8
	04	14.8
	05	10.6
	06	10.6
09/08 and 10/73	01	5.5
	02	3.0
	03	7.5
	04	8.3
	05	11.4
	06	8.3
11/13/73	01	4.7
	02	4.5
	03	4.6
	04	7.4
	05	6.6
	06	9.3

C. Limiting Nutrient Study:

1. Stations 1, 2, and 3 -

a. Autoclaved, filtered, and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.008	0.239	0.2
0.010 P	0.018	0.239	2.6
0.020 P	0.028	0.239	5.9
0.050 P	0.058	0.239	7.5
0.025 P + 0.5 N	0.033	0.739	11.8
0.050 P + 1.0 N	0.058	1.239	24.4
1.0 N	0.008	1.239	0.2

b. Filtered and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.006	0.223	0.2
0.010 P	0.016	0.223	3.8
0.020 P	0.026	0.223	6.4
0.050 P	0.056	0.223	10.1
0.025 P + 0.5 N	0.031	0.723	11.5
0.050 P + 1.0 N	0.056	1.223	22.5
1.0 N	0.006	1.223	0.2

2. Stations 4, 5, and 6 -

a. Autoclaved, filtered, and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.012	0.443	0.4
0.010 P	0.022	0.443	4.3
0.020 P	0.032	0.443	9.2
0.050 P	0.062	0.443	12.9
0.025 P + 0.5 N	0.037	0.943	12.8
0.050 P + 1.0 N	0.062	1.443	20.8
1.0 N	0.012	1.443	0.5

b. Filtered and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.007	0.489	0.2
0.010 P	0.017	0.489	1.7
0.020 P	0.027	0.489	5.9
0.050 P	0.057	0.489	9.2
0.025 P + 0.5 N	0.032	0.989	6.9
0.050 P + 1.0 N	0.057	1.489	16.7
1.0 N	0.007	1.489	0.1

5. Discussion -

The control yields of the assay alga, Selenastrum capricornutum, indicate that the potential primary productivity of Sinclair Lake was moderate at the time tne sample was taken (07/01/73). Also, increased orthophosphorus concentrations resulted in increased yields which shows that the lake was phosphorus limited. Note that addition of only nitrogen produced yields not significantly different than those of the controls. Although in all cases the yields were less than would be expected, the trends do indicate limitation by phosphorus.

The lake data indicate that Sinclair Lake was phosphorus limited at all sampling stations in September as well (the mean N/P ratios were 21/1 and greater) and at most stations in November. Following is a tabulation of the November N/P ratios by station with the indicated limiting nutrient in parentheses.

Station	N/P Ratio
1	20/1 (P)
2	13/1 (N-?)
3	15/1 (P)
4	14/1 (P)
5	33/1 (P)
6	7/1 (N)

IV. NUTRIENT LOADINGS
(See Appendix E for data)

For the determination of nutrient loadings, the Georgia National Guard collected monthly near-surface grab samples from each of the tributary sites indicated on the map (page v), except for the high runoff months of January and February when two samples were collected. Sampling was begun in March, 1973, and was completed in February, 1974.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Georgia District Office of the U.S. Geological Survey for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were determined by using a modification of a U.S. Geological Survey computer program for calculating stream loadings*. Nutrient loads shown are those measured minus point-source loads, if any.

Nutrient loads for unsampled "minor tributaries and immediate drainage" ("ZZ" of U.S.G.S.) were estimated using the means of the nutrient loads, in kg/km^2/year, at stations D-1, E-1, F-1, and H-1 and multiplying the means by the ZZ area in km^2.

The operators of the Eatonton, Monticello North, Monticello South, Madison Northside, and Madison Southside wastewater treatment plants provided monthly effluent samples and corresponding flow data. The nutrient loads in the domestic wastes of the Georgia Power Company were estimated at 1.134 kg P and 3.401 kg N/capita/year.

* See Working Paper No. 175.

A. Waste Sources†:

1. Known municipal -

Name	Pop. Served	Treatment	Mean Flow (m^3/d)	Receiving Water
Eatonton	4,125*	act. sludge	950.0	Rooty Creek
Monticello (North)	1,190**	pond	442.8	Pearson Creek
Monticello (South)	1,130**	pond	427.8	White Oak Creek
Madison (Northside)	1,150**	act. sludge	586.7	Mile Branch/ Apalachee River
Madison (Southside)	2,520**	act. sludge	953.8	Little Sugar Creek
Georgia Power Co., Harllee Branch	130**	act. sludge	49.2	Sinclair Lake
Georgia Pacific Co., Monticello	?	pond	14.2***	Cedar Creek

2. Known industrial -

Name	Type Waste	Treatment	Design Flow (m^3/d)	Receiving Water
Georgia Power Co.	fly ash, acid, caustic	settling pond	45,420	Sinclair Lake
Georgia Power Co.	cooling water	none	4,314,900	Sinclair Lake

† Anonymous, 1972.
* 1970 Census.
** Estimate based on flow of 0.3785 m^3/capita/day.
*** Includes industrial wastes.

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/yr	% of total
a. Tributaries (non-point load) -		
Murder Creek	6,075	2.4
Little River	19,740	7.7
Rooty Creek	7,530	2.9
Crooked Creek	1,320	0.5
Shoulderbone Creek	5,020	2.0
Fort Creek	830	0.3
Oconee River	187,610	73.3
Big Cedar Creek	3,845	1.5
b. Minor tributaries & immediate drainage (non-point load) -	9,365	3.7
c. Known municipal STP's -		
Eatonton	4,090	1.6
Monticello North	1,375	0.5
Monticello South	2,000	0.8
Madison Northside	3,040	1.2
Madison Southside	2,635	1.0
Georgia Power Co., Harllee Br.	145	<0.1
Georgia Pacific Co.	unknown	-
d. Septic tanks* -	360	0.1
e. Known industrial -		
Georgia Power Co.	unknown	-
Georgia Pacific Co.	unknown	-
f. Direct precipitation** -	1,090	0.4
Total	256,070	100.0

2. Outputs -

Lake outlet - Oconee River 175,555

3. Net annual P accumulation - 80,515 kg.

* Estimate based on 1,270 lakeshore dwellings; see Working Paper No. 175.
** See Working Paper No. 175.

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/ yr	% of total
a. Tributaries (non-point load) -		
Murder Creek	93,170	3.7
Little River	245,770	9.7
Rooty Creek	36,695	1.4
Crooked Creek	18,515	0.7
Shoulderbone Creek	63,270	2.5
Fort Creek	22,365	0.9
Oconee River	1,769,445	69.5
Big Cedar Creek	51,805	2.0
b. Minor tributaries & immediate drainage (non-point load) -	141,850	5.6
c. Known municipal STP's -		
Eatonton	6,605	0.3
Monticello North	2,115	0.1
Monticello South	1,620	<0.1
Madison Northside	4,665	0.2
Madison Southside	6,465	0.3
Georgia Power Co., Harllee Br.	440	<0.1
Georgia Pacific Co.	unknown	-
d. Septic tanks* -	13,535	0.5
e. Known industrial -		
Georgia Power Co.	unknown	-
Georgia Pacific Co.	unknown	-
f. Direct precipitation** -	67,120	2.6
Total	2,545,450	100.0

2. Outputs -

Lake outlet - Oconee River 2,698,035

3. Net annual N loss - 152,585 kg.

* Estimate based on 1,270 lakeshore dwellings; see Working Paper No. 175.
** See Working Paper No. 175.

D. Mean Annual Non-point Nutrient Export by Subdrainage Area:

Tributary	kg P/km²/yr	kg N/km²/yr
Murder Creek	12	184
Little River	27	339
Rooty Creek	73	354
Crooked Creek	19	265
Shoulderbone Creek	20	249
Fort Creek	9	240
Oconee River	40	373
Big Cedar Creek	12	155

E. Yearly Loading Rates:

In the following table, the existing phosphorus loading rates are compared to those proposed by Vollenweider (Vollenweider and Dillon, 1974). Essentially, his "dangerous" rate is the rate at which the receiving water would become eutrophic or remain eutrophic; his "permissible" rate is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic rate would be considered one between "dangerous" and "permissible".

Note that Vollenweider's model may not be applicable to water bodies with short hydraulic retention times.

	Total Phosphorus		Total Nitrogen	
	Total	Accumulated	Total	Accumulated
grams/m^2/yr	4.12	1.30	40.9	loss*

Vollenweider loading rates for phosphorus ($g/m^2/yr$) based on mean depth and mean hydraulic retention time of Sinclair Lake:

"Dangerous" (eutrophic rate)	1.30
"Permissible" (oligotrophic rate)	0.65

* There was an apparent loss of nitrogen during the sampling year. This could have been due to nitrogen fixation in the lake, solubilization of previously sedimented nitrogen, recharge with nitrogen-rich ground water, or unknown and unsampled point sources discharging directly to the lake. The "loss" also may have resulted from inadequate sampling. A comparison of Survey outlet data and Georgia Department of Natural Resources outlet data (Anonymous, 1974) shows that for comparable sampling times the Survey values for $NO_2 + NO_3$ and NH_3 were consistently higher than the DNR values.

V. LITERATURE REVIEWED

Anonymous, 1971. Inventory of water pollution control facilities. GA Water Qual. Contr. Bd., Atlanta.

Anonymous, 1972. Georgia municipal and industrial wastewater treatment facilities associated with reservoirs. GA Dept. of Nat. Resources, Atlanta.

Anonymous, 1974. Water quality monitoring data for Georgia streams, 1973; vol 1. GA Dept. of Nat. Resources, Atlanta.

Frey, John E., 1970. An instance of thermal pollution and the effect on temperature and oxygen levels in a middle Georgia reservoir. Proc. 24th Ann. Conf. S.E. Assoc. Game & Fish Comm., pp. 408-413, Atlanta.

Hall, Edward T., 1974. Personal communication (lake morphometry). GA Dept. of Nat. Resources, Atlanta.

Vollenweider, R. A., and P. J. Dillon, 1974. The application of the phosphorus loading concept to eutrophication research. Natl. Res. Council of Canada Publ. No. 13690, Canada Centre for Inland Waters, Burlington, Ontario.

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX B

LAKE RANKINGS

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	1315	BLUE RIDGE LAKE	524
2	1316	HORTON LAKE	523
3	1303	CHATUGE LAKE	424
4	1311	NOTTELY RESERVOIR	393
5	1310	LAKE SIDNEY LANIER	385
6	1304	CLARK HILL RESERVOIR	369
7	1301	ALLATOONA RESERVOIR	348
8	1302	BLACKSHEAR LAKE	344
9	1313	SINCLAIR LAKE	254
10	1312	LAKE SEMINOLE	253
11	1319	HIGH FALLS LAKE	142
12	1314	LAKE EUFAULA	134
13	1309	JACKSON LAKE	116
14	1317	LAKE HARTWELL	77

22.

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500- MEAN SEC	MEAN CHLORA	15- MIN DO	MEDIAN DISS P	INDEX NO
1301	ALLATOONA RESERVOIR	62 (8)	54 (7)	46 (6)	31 (4)	31 (0)	62 (7)	286
1302	BLACKSHEAR LAKE	38 (5)	31 (4)	0 (0)	100 (13)	100 (13)	15 (2)	284
1303	CHATUGE LAKE	85 (11)	85 (11)	92 (12)	69 (9)	31 (0)	62 (7)	424
1304	CLARK HILL RESERVOIR	54 (7)	62 (8)	62 (8)	54 (7)	31 (0)	46 (6)	309
1309	JACKSON LAKE	8 (1)	8 (1)	15 (2)	8 (1)	69 (9)	8 (1)	116
1310	LAKE SIDNEY LANIER	69 (9)	46 (6)	77 (10)	77 (10)	31 (0)	85 (10)	385
1311	NUTTELY RESERVOIR	77 (10)	69 (9)	69 (9)	62 (8)	31 (0)	85 (10)	393
1312	LAKE SEMINOLE	31 (4)	15 (2)	38 (5)	46 (6)	92 (12)	31 (4)	253
1313	SINCLAIR LAKE	46 (6)	38 (5)	54 (7)	23 (3)	31 (0)	62 (7)	254
1314	LAKE EUFAULA	15 (2)	23 (3)	31 (4)	15 (2)	77 (10)	23 (3)	184
1315	BLUE RIDGE LAKE	92 (12)	92 (12)	85 (11)	85 (11)	85 (11)	85 (10)	524
1317	LAKE HARDING	0 (0)	0 (0)	8 (1)	38 (5)	31 (0)	0 (0)	77
1318	HORTON LAKE	100 (13)	100 (13)	100 (13)	92 (12)	31 (0)	100 (13)	523
1319	HIGH FALLS LAKE	23 (3)	77 (10)	23 (3)	0 (0)	31 (0)	38 (5)	192

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS P
1301	ALLATOONA RESERVOIR	0.020	0.150	443.167	7.489	14.900	0.005
1302	BLACKSHEAR LAKE	0.035	0.250	468.091	1.855	11.700	0.014
1303	CHATUGE LAKE	0.014	0.110	382.778	6.339	14.900	0.005
1304	CLARK HILL RESERVOIR	0.024	0.150	439.250	6.715	14.900	0.007
1309	JACKSON LAKE	0.094	0.530	461.385	14.577	14.800	0.027
1310	LAKE SIDNEY LANIER	0.015	0.180	395.417	5.431	14.900	0.004
1311	NOTTELY RESERVOIR	0.015	0.130	405.667	6.656	14.900	0.004
1312	LAKE SEMINOLE	0.040	0.405	456.133	6.760	11.500	0.010
1313	SINCLAIR LAKE	0.025	0.230	440.667	8.006	14.900	0.005
1314	LAKE EUFAULA	0.044	0.345	457.667	9.083	14.400	0.011
1316	BLUE RIDGE LAKE	0.010	0.105	394.889	3.078	13.000	0.004
1317	LAKE HARDING	0.114	0.640	467.538	7.438	14.900	0.045
1318	BURTON LAKE	0.007	0.100	383.889	2.733	14.900	0.003
1319	HIGH FALLS LAKE	0.047	0.115	459.444	15.075	14.900	0.009

APPENDIX C

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR GEORGIA 12/2/75

LAKE CODE 1313 SINCLAIR LAKE

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 7511.0

NORMALIZED FLOWS(CMS)

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
1313A1	505.0	8.24	10.93	12.18	9.00	6.03	5.04	4.47	3.91	2.63	2.75	3.85	6.00	6.23
1313B1	725.2	11.86	15.83	17.50	12.91	8.69	7.11	6.51	5.75	3.85	3.96	5.66	8.66	8.99
1313C1	103.6	1.93	2.32	3.06	1.64	1.10	0.71	0.51	0.51	0.42	0.37	0.34	1.16	1.17
1313D1	69.9	0.85	1.08	1.44	0.99	0.68	0.51	0.37	0.31	0.31	0.28	0.31	0.59	0.64
1313E1	253.8	4.73	5.64	7.48	4.02	2.72	1.67	1.27	1.25	1.05	0.96	0.93	2.86	2.87
1313F1	93.2	1.73	2.07	2.75	1.50	1.02	0.62	0.45	0.45	0.37	0.34	0.34	1.05	1.05
1313G1	7511.0	123.86	159.57	186.86	141.64	97.81	68.41	52.44	41.85	37.26	51.03	46.67	85.74	90.73
1313G2	4739.7	80.99	98.34	112.76	93.19	63.06	48.11	43.78	32.62	25.29	31.26	39.42	57.09	60.28
1313H1	334.1	5.10	6.77	7.65	5.61	3.79	3.06	2.78	2.35	1.64	1.70	2.36	3.71	3.86
1313Z2	624.2	7.70	9.51	11.16	8.86	6.00	4.39	4.11	2.83	2.18	2.58	3.79	5.18	5.67

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 7511.0
SUM OF SUB-DRAINAGE AREAS = 7448.8

TOTAL FLOW IN = 1093.14
TOTAL FLOW OUT = 1093.14

NOTE *** LAKE AREA=24 SQ MI. NOT INCLUDED IN SUM OF SUB-DRAINAGE AREAS

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
1313A1	3	73	13.76	11	7.65				
	4	73	15.91	14	5.10				
	5	73	9.74	20	8.07				
	6	73	5.35	21	2.97				
	7	73	4.08	29	3.82				
	8	73	3.09	31	1.98				
	9	73	1.78	8	1.33				
	10	73	1.08	14	1.27				
	11	73	1.93						
	12	73	3.09	9	3.96				
	1	74	16.65	12	5.38	25	9.34		
	2	74	19.54	10	13.59	27	6.23		
1313B1	3	73	19.79	11	11.04				
	4	73	22.91	14	7.08				
	5	73	13.96	20	11.33				
	6	73	7.67	21	3.96				
	7	73	5.86	29	5.10				
	8	73	4.42	31	2.55				
	9	73	2.58	8	1.67				
	10	73	1.53	14	1.56				
	11	73	2.78						
	12	73	4.45	9	5.24				
	1	74	23.96	12	7.22	25	13.31		
	2	74	28.18	10	19.82	27	8.64		

96

TRIBUTARY FLOW INFORMATION FOR GEORGIA 12/2/75

LAKE CODE 1313 SINCLAIR LAKE

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
1313G1	3	73	199.92	11	145.55				
	4	73	284.30	14	189.44				
	5	73	104.77	20	131.39				
	6	73	111.29	21	84.67				
	7	73	56.92	29	29.45				
	8	73	50.12	31	70.51				
	9	73	28.60						
	10	73	35.11	14	9.91				
	11	73	30.58						
	12	73	68.53	9	33.98				
	1	74	184.63	12	106.47	25	193.97		
	2	74	244.94	10	194.54	27	107.60		
1313G2	3	73	145.83	11	125.67				
	4	73	205.30	8	164.01				
	5	73	101.94	20	54.03				
	6	73	93.45	5	82.15				
	7	73	50.97	7	48.90				
	8	73	36.81	7	41.80				
	9	73	33.98	8	22.29				
	10	73	31.43	7	35.11				
	11	73	30.87	10	27.69				
	12	73	46.72	8	63.15				
	1	74	149.23	8	119.21	26	94.01		
	2	74	118.36	10	162.54	23	106.47		
1313H1	3	73	8.64	11	4.81				
	4	73	10.00	14	3.11				
	5	73	6.12	20	4.96				
	6	73	3.34	22	10.76				
	7	73	2.55	29	2.32				
	8	73	1.95	31	1.19				
	9	73	1.13	8	0.79				
	10	73	0.68	14	0.76				
	11	73	1.19						
	12	73	1.93	9	2.38				
	1	74	10.48	12	3.26	25	5.66		
	2	74	12.32	10	8.35	27	3.82		
1313Z2	3	73	11.61						
	4	73	16.65						
	5	73	6.60						
	6	73	7.11						
	7	73	5.21						
	8	73	6.20						
	9	73	1.25						
	10	73	1.13						
	11	73	2.15						
	12	73	2.10						
	1	74	12.18						
	2	74	16.37						

27

TRIBUTARY FLOW INFORMATION FOR GEORGIA 12/2/75

LAKE CODE 1313 SINCLAIR LAKE

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
1313C1	3	73	2.94	11	6.37				
	4	73	3.03	14	1.42				
	5	73	0.59	20	0.85				
	6	73	1.47	21	0.45				
	7	73	0.65	29	0.91				
	8	73	1.44	31	0.25				
	9	73	0.17	8	0.20				
	10	73	0.15	14	0.15				
	11	73	0.15						
	12	73	0.22	9	0.16				
	1	74	0.34	12	0.31	25	0.85		
	2	74	2.97	10	2.66	27	0.99		
1313D1	3	73	1.78	11	0.79				
	4	73	2.10	8	8.50				
	5	73	1.27	6	0.31				
	6	73	0.68	5	0.40				
	7	73	0.54	7	0.74				
	8	73	0.40	7	4.53				
	9	73	0.24	8	0.15				
	10	73	0.15	7	0.16				
	11	73	0.27	10	0.24				
	12	73	0.40	8	0.48				
	1	74	2.15	8	0.79	26	0.91		
	2	74	2.61	10	1.36	23	1.27		
1313E1	3	73	7.15	11	16.71				
	4	73	7.45	8	27.75				
	5	73	1.50	6	1.10				
	6	73	3.45	5	0.62				
	7	73	1.61	7	0.88				
	8	73	3.51	7	18.12				
	9	73	0.45	8	0.48				
	10	73	0.37	7	0.40				
	11	73	0.40	10	0.34				
	12	73	0.51	8	0.34				
	1	74	3.60	8	1.13	26	1.44		
	2	74	7.22	10	6.80	23	3.96		
1313F1	3	73	2.63	11	3.82				
	4	73	2.78	8	5.95				
	5	73	0.57	6	0.27				
	6	73	1.27	5	0.16				
	7	73	0.57	7	0.22				
	8	73	1.27	7	4.02				
	9	73	0.16	8	0.12				
	10	73	0.14	7	0.10				
	11	73	0.14	10	0.09				
	12	73	0.19	8	0.09				
	1	74	1.30	8	0.28	26	0.37		
	2	74	2.63	10	1.59	23	0.96		

APPENDIX D

PHYSICAL and CHEMICAL DATA

STORET RETRIEVAL DATE 74/11/26

131301
32 08 35.0 083 12 20.0
SINCLAIR LAKE
13009 GEORGIA

11EPALES
3

2111202
0075 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/07/01	10 45	0000	29.0		58	60	8.10	19	0.070	0.400	0.070	0.004
	10 45	0006	28.9	7.6		55	8.00	16	0.070	0.300	0.060	0.004
	10 45	0015	28.7	7.1		55	7.80	15	0.080	0.300	0.080	0.003
	10 45	0030	24.8	1.8		55	6.70	15	0.100	0.200K	0.420	0.005
	10 45	0050	22.6	0.4		59	6.60	17	0.110	0.200K	0.470	0.006
	10 45	0071	21.4	0.3		72	6.70	27	0.350	0.400	0.200	0.004
73/09/08	16 30	0000	31.4	8.2	76	75	8.00	22	0.060	0.700	0.030	0.013
	16 30	0015	29.5	7.2		67	7.20	21	0.030	0.200K	0.020	0.011
	16 30	0030	28.0	0.4		67	6.60	23	0.080	0.300	0.030	0.011
	16 30	0050	26.2	0.1		82	6.30	27	0.420	0.700	0.040	0.012
	16 30	0070	24.7	0.0		106	6.30	33	0.870	1.400	0.050	0.031
73/11/13	10 50	0000	17.5		54	58	6.90	22	0.040	0.300	0.200	0.014
	10 50	0005	17.5	7.6		58	6.70	23	0.120	0.200	0.200	0.015
	10 50	0015	17.5	7.6		58	6.60	22	0.040	0.200	0.200	0.014
	10 50	0040	17.4	7.4		58	6.60	23	0.050	0.300	0.210	0.015
	10 50	0069	16.0	6.0		59	6.70	24	0.200	0.400	0.310	0.020

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 74/11/26

131301
32 08 35.0 083 12 20.0
SINCLAIR LAKE
13009 GEORGIA

11FALES 2111202
3 0075 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/07/01	10 45	0000	0.022	11.1
	10 45	0006	0.018	
	10 45	0015	0.018	
	10 45	0030	0.025	
	10 45	0050	0.031	
	10 45	0071	0.041	
73/09/09	16 30	0000	0.022	5.5
	16 30	0015	0.022	
	16 30	0030	0.028	
	16 30	0050	0.044	
	16 30	0070	0.079	
73/11/13	10 50	0000	0.018	4.7
	10 50	0005	0.020	
	10 50	0015	0.017	
	10 50	0040	0.021	
	10 50	0069	0.044	

STORET RETRIEVAL DATE 74/11/26

131302
33 10 33.0 083 12 30.0
SINCLAIR LAKE
13009 GEORGIA

11EPALES
3

2111202
.040 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/07/01	11	30 0000	29.3		70	60	8.70	17	0.100	0.400	0.080	0.003
	11	30 0006	28.9	7.6		55	8.20	16	0.080	0.300	0.070	0.002
	11	30 0015	28.7	6.5		55	7.60	16	0.060	0.300	0.060	0.002
	11	30 0025	25.4	1.9		60	6.70	20	0.190	0.200	0.090	0.002
	11	30 0036	23.5	0.9		60	6.70	20	0.190	0.400	0.090	0.003
73/09/10	10	15 0000	30.1	7.6	90	71	7.60	28	0.140	1.300	0.040	0.003
	10	15 0015	29.9	5.8		69	6.80	27	0.020K	0.400	0.020	0.003
	10	15 0027	28.7	0.2		73	6.30	30	0.090	0.400	0.020	0.003
73/11/13	10	30 0000	17.0		54	58	6.90	25	0.050	0.600	0.160	0.016
	10	30 0005	16.9	8.4		57	6.70	23	0.080	0.300	0.150	0.015
	10	30 0015	16.4	8.2		57	6.60	24	0.050	0.400	0.140	0.015
	10	30 0028	15.0	8.6		57	6.70	23	0.070	0.300	0.130	0.016

K VALUE KNOWN TO BE
LESS THAN INDICATED

32

STORET RETRIEVAL DATE 74/11/26

131302
33 10 33.0 083 12 30.0
SINCLAIR LAKE
13009 GEORGIA

11PALES 2111202
3 0040 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/07/01	11	30 0000	0.019	8.1
	11	30 0006	0.017	
	11	30 0015	0.015	
	11	30 0025	0.023	
	11	30 0036	0.025	
73/09/10	10	15 0000	0.018	3.0
	10	15 0015	0.015	
	10	15 0027	0.023	
73/11/13	10	30 0000	0.020	4.5
	10	30 0005	0.019	
	10	30 0015	0.018	
	10	30 0028	0.044	

STORET RETRIEVAL DATE 74/11/26

131303
33 10 18.0 083 14 50.0
SINCLAIR LAKE
13009 GEORGIA

11EPALES 2111202
3 0063 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/07/01	13 00	0000	30.3		60	65	8.20	16	0.100	1.700	0.140	0.009
	13 00	0006	29.6	8.0		60	7.80	16	0.080	0.300	0.150	0.003
	13 00	0015	29.0	6.9		60	7.50	15	0.070	0.200K	0.100	0.003
	13 00	0030	24.5	1.2		63	6.70	22	0.160	0.400	0.320	0.004
	13 00	0045	22.8	0.5		70	6.70	26	0.280	0.400	0.290	0.005
	13 00	0058	22.1	0.9		73	6.80	27	0.340	0.700	0.260	0.004
73/09/10	10 45	0000	31.7	6.0	73	77	6.80	30	0.030	0.600	0.030	0.002
	10 45	0015	29.3	4.0		69	6.50	27	0.020K	0.400	0.030	0.002
	10 45	0030	27.4	0.1		76	6.20	25	0.180	0.500	0.030	0.002
	10 45	0045	26.5	0.1		80	6.50	29	0.330	0.700	0.080	0.002
	10 45	0054	25.9	0.2		80	6.40	29	0.410	0.700	0.110	0.009
73/11/13	10 08	0000	19.5		54	63		30	0.030	0.300	0.150	0.015
	10 08	0005	18.7	8.0		61	6.80	29	0.030	0.300	0.180	0.017
	10 08	0015	18.1	7.0		60	6.60	28	0.040	0.200	0.200	0.016
	10 08	0030	17.7	6.6		88	6.40	27	0.080	0.300	0.190	0.019
	10 08	0062	16.1	6.4		88	6.80	24	0.160	0.400	0.310	0.026

34

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 74/11/26

131303
33 10 14.0 083 14 50.0
SINCLAIR LAKE
13009 GEORGIA

11PALES 2111202
3 0063 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/07/01	13 00	0000	0.042	7.8
	13 00	0006	0.035	
	13 00	0015	0.020	
	13 00	0030	0.041	
	13 00	0045	0.047	
	13 00	0058	0.045	
73/09/10	10 45	0000	0.017	7.5
	10 45	0015	0.012	
	10 45	0030	0.016	
	10 45	0045	0.030	
	10 45	0054	0.030	
73/11/13	10 08	0000	0.027	4.6
	10 08	0005	0.014	
	10 08	0015	0.019	
	10 08	0030	0.032	
	10 08	0052	0.075	

STORET RETRIEVAL DATE 74/11/26

131304
33 12 50.0 083 15 40.0
SINCLAIR LAKE
13141 GEORGIA

11EPALES
3

2111202
0060 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/07/01	13 30	0000	30.5		60	65	8.50	22	0.110	0.400	0.130	0.005
	13 30	0006	29.5	8.9		60	8.50	14	0.080	0.300	0.080	0.004
	13 30	0015	28.0	5.9		60	7.30	16	0.110	0.200K	0.190	0.005
	13 30	0035	24.1	0.6		70	6.80	23	0.350	0.700	0.400	0.007
	13 30	0056	21.3	0.7		81	6.90	27	0.490	0.800	0.300	0.007
73/09/10	13 55	0000	31.0	7.4	69	75	8.20	24	0.090	0.600	0.030	0.002K
	13 55	0015	30.4	5.0		72	7.20	23	0.020K	0.300	0.040	0.002K
	13 55	0035	27.0	0.4		81	6.50	29	0.250	0.600	0.230	0.002
73/11/13	09 13	0000	18.1		60	62	6.90	20	0.050	0.400	0.160	0.017
	09 13	0005	18.1	8.0		62	6.90	19	0.040	0.300	0.140	0.015
	09 13	0015	17.6	8.4		62	6.90	17	0.050	0.300	0.130	0.016
	09 13	0030	16.8	8.0		60	6.80	18	0.070	0.300	0.130	0.016
	09 13	0052	15.9	7.2		60	6.70	21	0.150	0.400	0.240	0.020

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 74/11/26

131304
33 12 50.0 083 15 40.0
SINCLAIR LAKE
13141 GEORGIA

11FPALES 2111202
0040 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/07/01	13 30	0000	0.033	14.8
	13 30	0006	0.028	
	13 30	0015	0.031	
	13 30	0035	0.060	
	13 30	0056	0.056	
73/09/10	13 55	0000	0.021	8.3
	13 55	0015	0.019	
	13 55	0035	0.051	
73/11/13	09 13	0000	0.028	7.4
	09 13	0005	0.025	
	09 13	0015	0.026	
	09 13	0030	0.035	
	09 13	0052	0.075	

STORET RETRIEVAL DATE 74/11/26

131305
33 16 45.0 083 13 10.0
SINCLAIR LAKE
13141 GEORGIA

11EPALES
3

2111202
0025 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/07/01	14	10 0000	29.3		36	65	9.10	22	0.130	1.200	0.110	0.006
	14	10 0006	28.1	9.1		60	8.80	17	0.070	0.300	0.120	0.015
	14	10 0015	26.7	6.7		60	7.60	19	0.120	0.200K	0.270	0.005
	14	10 0021	25.5	6.1		65	7.10	23	0.170	0.200K	0.470	0.008
73/09/10	15	00 0000	30.1	8.8	35	73	8.70	25	0.030	1.200	0.070	0.003
	15	00 0015	28.7	6.2		73	7.50	26	0.040	0.500	0.140	0.002
	15	00 0025	26.9	4.6		75	6.80	26	0.070	0.400	0.390	0.002
73/11/13	08	50 0000	10.3		29	52	6.80	23	0.070	0.500	0.470	0.049
	08	50 0005	10.3	10.0		53	6.80	21	0.040	0.200	0.480	0.049
	08	50 0014	10.2	8.0		54	6.90	19	0.050	0.200	0.490	0.048

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 74/11/26

131305
33 16 45.0 083 13 10.0
SINCLAIR LAKE
13141 GEORGIA

11EPALES 2111202
3 0025 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/07/01	14 10	0000	0.045	10.6
	14 10	0006	0.041	
	14 10	0015	0.061	
	14 10	0021	0.044	
73/09/10	15 00	0000	0.043	11.4
	15 00	0015	0.035	
	15 00	0025	0.036	
73/11/13	08 50	0000	0.087	6.6
	08 50	0005	0.083	
	08 50	0014	0.080	

STORET RETRIEVAL DATE 74/11/26

131306
33 10 07.0 083 04 17.0
SINCLAIR LAKE
13009 GEORGIA

11EPALES
3

2111202
0048 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/07/01	14	45 0000	30.6		60	60	8.50	21	0.100	0.500	0.080	0.004
	14	45 0006	28.8	7.4		60	8.20	22	0.070	0.500	0.080	0.003
	14	45 0015	26.8	1.8		65	6.80	25	0.120	0.300	0.180	0.003
	14	45 0030	23.9	0.9		80	6.80	33	0.290	0.600	0.220	0.003
	14	45 0044	23.2	0.7		90	6.90	38	0.430	0.700	0.130	0.003
73/09/10	11	40 0000	30.2	7.6	75	77	8.20	22	0.060	0.600	0.030	0.003
	11	40 0015	28.8	1.4		76	7.00	24	0.020K	0.300	0.020	0.002
	11	40 0030	27.0	0.2		90	6.40	33	0.210	0.400	0.050	0.003
	11	40 0042	26.7	0.3		94	6.50	34	0.180	0.500	0.070	0.002
73/11/13	09	36 0000	16.8		45	62	7.00	23	0.040	0.500	0.090	0.018
	09	36 0005	16.7	8.4		62	6.90	24	0.040	0.300	0.060	0.016
	09	36 0015	16.6	8.2		62	6.70	25	0.040	0.300	0.060	0.017
	09	36 0030	16.2	8.6		62	6.70	28	0.070	0.200	0.040	0.017
	09	36 0040	15.9	7.6		63	6.80	30	0.090	0.400	0.040	0.017

K VALUE KNOWN TO BE
LESS THAN INDICATED

HD

STORET RETRIEVAL DATE 74/11/26

131306
33 10 07.0 083 04 17.0
SINCLAIR LAKE
13009 GEORGIA

11EPALES 2111202
3 004R FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/07/01	14 45	0000	0.026	10.6
	14 45	0006	0.024	
	14 45	0015	0.028	
	14 45	0030	0.051	
	14 45	0044	0.046	
73/09/10	11 40	0000	0.019	4.3
	11 40	0015	0.014	
	11 40	0030	0.017	
	11 40	0042	0.018	
73/11/13	09 36	0000	0.036	9.3
	09 36	0005	0.029	
	09 36	0015	0.027	
	09 36	0030	0.037	
	09 36	0040	0.052	

APPENDIX E

TRIBUTARY and WASTEWATER
TREATMENT PLANT DATA

STORET RETRIEVAL DATE 75/12/02

1313A1 1313A1
33 13 00.0 083 26 00.0
MURDER CREEK
13087 PUTNAME CO HWY M
T/SINCLAIR LAKE
BRDG ON US 129 N OF RESSEAUS CROSSROADS
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/11	11	13	0.115	0.250	0.026	0.009	0.035
73/04/14	19	10	0.130	1.050	0.132	0.015	0.040
73/05/20	12	35	0.210	1.150	0.231	0.018	0.045
73/06/21	19	00	0.168	0.190	0.052	0.011	0.035
73/07/29	19	35	0.126	0.580	0.050	0.026	0.045
73/08/31	19	15	0.010K	0.470	0.013	0.010	0.060
73/10/14	14	10	0.087	0.450	0.022	0.019	0.075
73/12/09	16	08	0.140	0.200	0.020	0.032	0.067
74/01/12	15	00	0.208	0.200	0.020	0.015	0.055
74/01/25	15	15	0.152	0.200	0.015	0.025	0.080
74/02/10	10	55	0.192	0.400	0.022	0.020	0.080
74/02/27	10	00	0.152	0.200	0.020	0.020	0.210

43

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/12/02

131381 131381
33 15 30.0 083 25 00.0
LITTLE RIVER
13 PUTNAME CO HWY M
T/SINCLAIR LAKE
BRDG ON US 129 1.5 MI SW MISSION CHURCH
11EPALES 211120
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/11	11	26	0.230	0.740	0.077	0.013	0.045
73/04/14	19	20	0.180	1.800	0.046	0.019	0.050
73/05/20	12	40	0.310	1.040	0.067	0.039	0.140
73/06/21	19	14	0.294	2.600	0.126	0.023	0.050
73/07/29	19	05	0.260	0.610	0.035	0.061	0.140
73/08/31	19	00	0.160	0.100K	0.007	0.027	0.055
73/10/14	14	20	0.150	0.200	0.028	0.033	0.075
73/12/09	16	18	0.320	0.300	0.012	0.055	0.090
74/01/12	15	20	0.276	0.200	0.010	0.025	0.065
74/01/25	15	30	0.240	0.500	0.015	0.030	0.125
74/02/10	11	50	0.270	0.500	0.030	0.025	0.110
74/02/27	09	00	0.216	0.900	0.085	0.020	0.045

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/12/02

1313C1 1313C1
43 14 30.0 083 19 00.0
ROOTY CREEK
13 PUTNAME CO HWY M
T/SINCLAIR LAKE
BANK 800 FT ABOVE BRDG AT MOUTH
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/11	10 19		0.340	0.850	0.061	0.069	0.155
73/04/14	18 15		0.330	0.370	0.042	0.069	0.120
73/05/20	11 55		0.520	2.200	0.350	0.200	0.530
73/06/21	18 30		0.540	0.240	0.027	0.150	0.190
73/07/29	21 00		0.399	0.600	0.017	0.210	0.270
73/08/31	20 30		0.530	0.280	0.023	0.231	0.290
73/10/14	13 37		0.600	0.450	0.019	0.338	0.440
73/12/09	15 34		0.176	0.750	0.024	0.012	0.360
74/01/12	14 15		0.850	0.500	0.090	0.220	0.315
74/01/25	14 30		0.680	0.600	0.090	0.125	0.240
74/02/10	12 15		0.616	0.700	0.120	0.090	0.230
74/02/27	11 00		0.552	0.400	0.070	0.085	0.230

STORET RETRIEVAL DATE 75/12/02

131301 131301
33 17 30.0 083 15 30.0
CROOKED CREEK
13 PUTNAME CO HWY M
T/SINCLAIR LAKE
HWY BRDG BETWEEN MOUTH & CON RUSH CREEK
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/11	16 30		0.147	1.490	0.042	0.021	0.052
73/05/06	14 35		0.198	1.700	0.052	0.014	0.037
73/06/05	14 15		0.210	0.360	0.019	0.035	0.055
73/07/07	10 30		0.450	1.300	0.120	0.138	0.280
73/08/07	10 15		0.170	0.290	0.017	0.034	0.075
73/09/08	13 50		0.140	0.335	0.017	0.019	0.035
73/10/07	11 30		0.066	0.450	0.014	0.027	0.045
73/11/10	10 06		0.013	0.350	0.020	0.016	0.025
73/12/08	09 16		0.056	0.600	0.016	0.032	0.055
74/01/08	14 45		0.262	0.500	0.065	0.052	0.110
74/01/26	16 00		0.192	0.200	0.010	0.035	0.055
74/02/10	13 50		0.252	0.300	0.040	0.030	0.070
74/02/23	14 00		0.208	0.300	0.035	0.035	0.075

46

STORET RETRIEVAL DATE 75/12/02

1313E1 1313E1
33 20 30.0 083 05 00.0
SHOULDERBONE CREEK
13 HANCOCK CO HWY M
T/SINCLAIR LAKE
RT 16 BRDG SE OF JCT WITH RT 77
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/11	15	10	0.092	1.470	0.048	0.013	0.030
73/04/08	12	50	0.078	0.630	0.130	0.031	0.105
73/05/06	15	30	0.099	1.540	0.030	0.008	0.025
73/06/05	15	00	0.132	0.237	0.016	0.020	0.040
73/07/07	11	20	0.130	0.230	0.024	0.018	0.040
73/08/07	11	30	0.069	0.270	0.017	0.026	0.080
73/09/08	14	30	0.086	0.190	0.020	0.014	0.035
73/10/07	13	15	0.046	0.300	0.027	0.024	0.055
73/11/10	11	15	0.010K	0.350	0.048	0.013	0.040
73/12/08	09	55	0.012	0.500	0.024	0.016	0.025
74/01/08	15	30	0.168	0.200	0.025		0.035
74/01/26	17	00	0.088	0.100	0.015	0.020	0.050
74/02/10	14	25	0.168	0.850	0.085	0.020	0.060
74/02/23	15	15	0.116	0.400	0.025	0.020	0.050

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/12/02

1313F1 1313F1
33 18 30.0 083 06 00.0
FORT CREEK
13 HANCOCK CO HWY M
T/SINCLAIR LAKE
BRDG ON SEC RD WNW OF SPARTA
211120
11EPALES 0000 FEET DEPTH
4

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/11	15 35		0.034	2.200	0.078	0.008	0.015
73/05/05	15 50		0.036	1.600	0.020		0.020
73/06/05	15 30		0.050	0.440	0.168	0.011	0.015
73/07/07	11 50		0.045	0.240	0.013		0.015
73/08/07	12 00		0.040	0.230	0.020	0.019	0.040
73/09/08	15 00		0.048	0.390	0.016	0.006	0.020
73/10/07	13 45		0.014	0.250	0.015	0.013	0.020
73/11/10	11 45		0.010K	0.150	0.015	0.011	0.025
73/12/08	10 10		0.016	0.500	0.020	0.012	0.015
74/01/08	15 00		0.032	0.100	0.010	0.015	0.020
74/01/28	17 10		0.024	0.100K	0.007	0.010	0.015
74/02/10	14 40		0.064	0.300	0.025	0.015	0.040
74/02/23	15 30		0.040	0.500	0.030	0.015	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/12/02

1313G1 1313G1
33 08 30.0 083 12 30.0
OCONEE RIVER
13 BALDWIN CO HWY M
O/SINCLAIR LAKE
BANK BELO DAM NEAR POWER PLANT W SIDE
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/11	09 52		0.294	1.680	0.075	0.017	0.040
73/04/14	17 30		0.230	1.800	0.590	0.034	0.100
73/05/20	11 30		0.270	0.930	0.057	0.017	0.035
73/06/21	17 50		0.300	0.595	0.176	0.014	0.040
73/07/29	20 30		0.069	0.500	0.138	0.019	0.030
73/08/31	20 00		0.015	0.580	0.357	0.019	0.050
73/10/14	14 05		0.220	0.300	0.080	0.026	0.026
73/12/09	15 07		0.730	0.300	0.108	0.010	0.023
74/01/12	13 45		0.320	0.300	0.040	0.030	0.080
74/01/25	13 30		0.352	0.400	0.050	0.025	0.075
74/02/10	10 00		0.276	0.600	0.085	0.040	0.140
74/02/27	19 00		0.252	0.400	0.045	0.025	0.120

bh

STORET RETRIEVAL DATE 75/12/02

131G2 131G2
33 22 00.0 083 08 30.0
OCONEE RIVER
13 PUTNAM CO HWY MA
I/SINCLAIR LAKE
BOAT RAMP BELO HWY 16 BRDG
11EPALES 211204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/11	16 00		0.380	1.150	0.200	0.023	0.040
73/04/08	11 45		0.220	1.130	0.240	0.050	0.175
73/05/20	15 10		0.480	1.200	0.105	0.023	0.065
73/06/05	14 50		0.450	0.400	0.088	0.026	0.083
73/07/07	11 00		0.420	0.250	0.023	0.028	0.070
73/08/07	10 50		0.530	0.255	0.020	0.033	0.045
73/09/08	14 25		0.410	0.350	0.038	0.030	0.050
73/10/07	12 45		0.460	0.350	0.036	0.040	0.120
73/11/10	10 40		0.450	0.350	0.023	0.048	0.082
73/12/08	09 40		0.440	0.400	0.032	0.044	0.120
74/01/08	15 12		0.460	0.400	0.030	0.040	0.133
74/01/26	16 35		0.450	0.200	0.030	0.030	0.100
74/02/10	14 10		0.430	0.400	0.035	0.025	0.113
74/02/23	14 30		0.420	0.200	0.025	0.030	0.085

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STORET RETRIEVAL DATE 75/12/02

1313H1 1313H1
33 11 00.0 083 26 30.0
BIG CEDAR CREEK
13 PUTNAM CO HWY MA
T/SINCLAIR LAKE
BRDG ON US 129 NNE OF GRAY
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/11	11 00		0.063	0.840	0.044	0.010	0.030
73/04/14	18 45		0.066	0.580	0.115	0.009	0.025
73/05/20	12 25		0.110	1.100	0.300	0.010	0.045
73/06/22	19 00		0.096	0.740	0.200	0.008	0.030
73/07/29	20 00		0.078	0.360	0.033	0.017	0.025
73/08/31	19 25		0.072	0.100K	0.014	0.011	0.025
73/10/14	14 00		0.040	0.200	0.027	0.016	0.035
73/12/09	15 59		0.052	0.200	0.020	0.016	0.030
74/01/12	14 45		0.084	0.200	0.015	0.010	0.030
74/01/25	15 00		0.072	0.100	0.010	0.015	0.045
74/02/10	10 50		0.144	0.400	0.030	0.015	0.080
74/02/27	11 00		0.088	0.200	0.020	0.010	0.200

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 74/01/15

413BCA A513BCA P002900
33 19 00.0 133 22 00.0
EATONTON
1804/ PUTNAM CO HWY 48
T/SINCLAIR LAKE
MOODY CREEK
11FPALES 2141204
" 0000 FEET DEPTH

DATE FROM TO	TIME	DEPTH FEET	00630 NO3&NO2 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/07/04	11 00		0.120	14.000	4.500	7.000	8.400	0.290	0.300
73/08/23	11 00		0.140	13.000	1.600	4.800	6.600	0.235	0.225
73/09/04	13 00		0.073	25.100				0.300	0.300
73/11/04	11 00		0.260	15.000	1.900	5.900	7.400	0.250	0.250
73/11/05	12 30		0.230	24.000	4.600	13.700	14.000	0.230	0.225
73/12/21	10 00		0.140	25.000	7.000	15.400	16.700	0.265	0.240
74/01/04	10 00		0.090	12.500	2.100	13.200	14.300	0.235	0.240
74/02/07			0.120	8.500	2.240	6.700	8.500	0.210	0.240
74/03/04	12 00		0.060	14.000	5.100	11.500	13.000	0.225	0.240
74/04/11	10 00		0.230	12.000	3.300	8.000	9.100	0.220	0.225
74/05/08	13 00		0.360	17.000	4.300	11.500	15.000	0.250	0.240
74/06/24	10 00		0.060	24.000	4.600	13.000	14.000	0.240	0.220
74/07/17	13 00		0.040	26.000	4.000	4.500	12.500	0.270	0.252

STORET RETRIEVAL DATE 74/01/28

131321 P0131321 2000700
33 19 00.0 083 24 10.0
MONTICELLO NORTH
13009 13250000 ATHENS
1/LAKE SINCLAIR
PEARSON CREEK/MURDER CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 (00620)NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/04/13	11 00								
CP(T)-			0.220	14.700	3.500	5.200	6.600	0.100	0.100
73/04/13	16 00								
73/05/15	11 00								
CP(T)-			0.065	13.200	1.500	5.500	7.000	0.090	0.095
73/05/15	16 00								
73/06/14	11 00								
CP(T)-			0.013	2.760	0.092	4.500	4.925	0.098	0.175
73/06/14	16 00								
73/07/13	11 00								
CP(T)-			0.240	14.000	0.180	6.500	8.450	0.100	0.100
73/07/13	16 00								
73/08/20	11 00								
CP(T)-			0.048	8.600	0.105	6.300		0.095	0.095
73/08/20	16 00								
73/09/15	11 00								
CP(T)-			0.080	17.600	3.800	8.120	9.700	0.105	0.105
73/09/15	16 00								
73/10/15	11 00								
CP(T)-			0.021	21.500	1.800	8.775	12.500	0.170	0.175
73/10/15	16 00								
73/11/15	10 00								
CP(T)-			0.040	14.500	5.800	9.300	9.300	0.100	0.100
73/11/15	16 00								
73/12/14	10 00								
CP(T)-			0.120	15.000	4.300	8.200	9.700	0.100	0.100
73/12/14	16 00								
74/01/15	10 00								
CP(T)-			0.240	12.500	3.400	7.100	8.300	0.100	0.100
74/01/15	16 00								
74/02/14	10 00								
CP(T)-			0.520	8.400	3.000	4.400	6.000	0.100	0.100
74/02/14	16 00								
74/03/14	11 00								
CP(T)-			0.200	13.000	5.050	6.200	7.400	0.100	0.100
74/03/14	16 00								

STORET RETRIEVAL DATE 75/01/06

131321 P0131321 P000700
33 19 00.0 083 24 30.0
MONTICELLO NORTH
13009 1:250000 ATHENS
1/LAKE SINCLAIR
PEARSON CREEK/MURDER CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
74/04/15	10 00		3.040	4.700	2.600	5.400	6.900	0.100	0.175
CH(T)-									
74/04/15	16 00								

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STORET RETRIEVAL DATE 75/01/06

131322 PD131322 P000850
33 19 00.0 083 24 30.0
MONTICELLO SOUTH
13 1:250000 ATHENS
T/LAKE SINCLAIR
WHITE OAK CREEK/MURDER CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/04/13 11 00 CP(T)- 73/04/13 16 00			0.810	7.800	3.200	7.000	7.800	0.090	0.090
73/05/15 11 00 CP(T)- 73/05/15 16 00			0.620	12.000	4.250	10.500	11.500	0.085	0.095
73/06/14 11 00 CP(T)- 73/06/14 16 00			0.490	4.870	0.081	10.750	11.250	0.098	0.175
73/07/13 11 00 CP(T)- 73/07/13 16 00			0.270	9.800	0.800	9.000	14.000	0.092	0.093
73/08/20 11 00 CP(T)- 73/08/20 16 00			0.240	27.300	0.099	11.800	16.000	0.090	0.090
73/09/17 11 00 CP(T)- 73/09/17 16 00			0.132	9.350	0.785	15.000	15.800	0.093	0.100
73/10/15 11 00 CP(T)- 73/10/15 16 00			1.935	7.600	0.650	15.380	17.600	0.175	0.175
73/11/15 10 00 CP(T)- 73/11/15 16 00			4.400	5.900	0.390	16.800	17.300	0.094	0.095
73/12/14 11 00 CP(T)- 73/12/14 16 00			2.600	9.100	0.250	14.700	16.000	0.093	0.093
74/01/15 10 00 CP(T)- 74/01/15 16 00			0.320	10.000	2.300	12.000	13.500	0.093	0.093
74/02/18 10 00 CP(T)- 74/02/18 16 00			0.800	6.200	1.350	5.700	6.800	0.095	0.095
74/03/15 10 00 CP(T)- 74/03/15 16 00			0.160	11.000	3.400	7.900	9.600	0.095	0.095

STORET RETRIEVAL DATE 74/07/26

131322 P0131322 P000250
33 19 00.0 083 24 30.0
MONTICELLO SOUTH
13 1:250000 ATHENS
T/LAKE SINCLAIR
WHITE OAK CREEK/MURDER CREEK
IIPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	NITROGEN, AMMONIA TOTAL MG/L	NITROGEN, KJEL TOT MG/L	PHOS-TOT IN MG/L	ORTHOPHOS-DIS MG/L P	PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
74/04/15	10 00								
CP(T)-			1.430	3.000	1.250	5.200	5.100	0.035	0.175
74/04/15	10 00								

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STORET RETRIEVAL DATE 75/01/06

131331 AS131331 P001100
33 35 00.0 083 28 30.0
MADISON NORTHSIDE
13 1:250000 ATHENS
T/LAKE SINCLAIR
MILE BRANCH/APALACHEE RIVER/OCONEE RIVER
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO3&NO2 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/04/18	11 00		0.065	27.300	14.800	13.000	13.500	0.250	0.230
73/05/22	09 30		0.330	33.500	10.900	12.400	18.500	0.150	0.125
73/06/22	11 00		0.055	18.900	8.250	7.900	9.500	0.120	0.125
73/07/23	10 00		0.150	22.000	9.700	11.000	13.500	0.120	0.125
73/08/22	08 15		0.160	22.000	9.500	13.000	15.000	0.100	0.125
73/09/24	11 00		0.070	29.000	17.000	15.500	17.820	0.150	0.125
73/10/27	09 30		0.150	6.700	2.100	13.000	14.000	0.150	0.125
73/11/27	13 00		0.120	23.500	11.000	15.800	18.000	0.160	0.130
73/12/26	09 00		0.800	23.000	6.200	17.600	22.000	0.175	0.150
74/01/23	09 30		0.200	24.000	6.500	8.800	9.700	0.150	0.175
74/02/23	10 30		0.040	12.000	4.800	6.300	7.700	0.250	0.250
74/03/25	15 00		0.400	14.000	6.500	9.300	13.500	0.200	0.175

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